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AUTHOR	Bailey, Thomas R.; Hughes, Katherine L.; Karp, Melinda Mechur
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ABSTRACT

Dual enrollment programs allow high school students to enroll in college courses before high school graduation, giving them firsthand exposure to the requirements of college-level work and allowing them to gain high school and college credit simultaneously. The role of dual enrollments in easing the transition between high school and postsecondary education was explored through a review of dual enrollment programs across the United States. Particular attention was paid to New York City's College Now program and Wisconsin's Youth Options program. College Now allows seniors from select New York City high schools to take up to six credits of college-level courses per semester at their high school. Whereas College Now focuses on academic subjects and preparing students for college-level work, Youth Options focuses on providing young people with expanded curricular choice, particularly in vocational subjects. Compared with other City University of New York freshman, College Now graduates earned more college credit than and were more likely to graduate from college on time. Youth Options was found to have had a discernible impact in providing a wide array of curricular options to high school students, particularly in rural schools. It was concluded that both delivery models have the potential to improve preparation for college. (Contains 37 references.) (MN)

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Thomas R. Bailey

Katherine L. Hughes

Melinda Mechur Karp

Community College Research Center and Institute on Education and the Economy

Teachers College/Columbia University

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Introduction

Research demonstrates clear economic benefits from continuing education beyond high school (NCES, 2001). Earning an associate or particularly a bachelor's degree has large economic returns (Grubb, 1999). As one policy organization concisely put it in terms that young people can understand: "More ed, more bread" (Kleiman, 2001). And today's youth do understand. Thus college aspirations have risen dramatically in the last two decades (NCES, 2001). This rise in ambitions is not limited to upper income families (Schneider & Stevenson, 1999); a majority of twelfth graders say that they "definitely" plan to earn a bachelor's degree (NCES, 2001).

However, far fewer young people graduate from postsecondary school than state that they intend to do so. Almost two-thirds of high school graduates enter postsecondary schools immediately after high school (NCES, 2001). Yet of those who entered postsecondary education for the first time in the 1995-1996 school year, 37 percent had left two years later without having earned a degree or certificate. In 2000, 66 percent of high school graduates aged 25 to 29 had completed some college but only 33 percent of graduates held a bachelor's degree (NCES, 2001).

Thus the transition from high school to college is an unsuccessful one for many. This slippage results from a variety of causes. Students may be unsure of how to apply for college or how to pay for it; they could be academically unprepared for higher education; or they may face what can be a frustrating task of balancing school and work while searching for a course of study that will place them in a meaningful career path. One longitudinal and in-depth study of American youth summarizes the problem by finding that most high school students now "have high ambitions but no clear life plans for reaching them" (Schneider & Stevenson, 1999). This issue has recently been given new attention by organizations and groups such as the American Youth Policy Forum (2000) and the National Commission on the High School Senior Year (2001), both of which issued reports calling for, among other things, a re-thinking of how students move from secondary to postsecondary education.

What should policymakers' focus be in improving this transition for young Americans? Research does give some direction. Through analysis of the High School & Beyond national longitudinal data set, Adelman (1999) found that the strongest predictor of bachelor's degree completion was the intensity and quality of students' high school curriculum. The efforts of the last few years towards raising academic standards have included requiring the completion of more rigorous coursework for graduation, as well as defining the levels of academic content students should be learning from that coursework. And there has been progress. In 1982, only 14 percent of high school students took the minimum coursework recommended by the 1983 *Nation At Risk* report, which is four years of English and three each of science, math, and social studies. In 1994, 51 percent of students did so (Jennings & Rentner, 1998). Enrollments in advanced math, science, and AP classes are higher than they were a decade ago (ibid.).

Thus, while there is still a great deal of progress to be made, more high school graduates are better prepared for further education than previously. Many believe that a continuation of the standards movement, supported by increased teacher training, will bring about further improvement (Jennings & Rentner, 1998). Yet even with an upgraded high school curriculum, school district requirements for graduation still often fall short of those for college entry and success (The Education Trust, 1999). The National Commission on the High School Senior Year (2001) reported that only ten states have aligned their high school graduation and college admissions requirements in English, and only two have done so in math. That report also gives examples of how high school exit and college entrance examinations often use different formats and emphasize different content (ibid.).

Some analysts argue that the open door policy at community colleges, and even at many four-year schools, gives confusing signals to high school students. According to Rosenbaum (1998), students correctly perceive that they can attend college somewhere, even though they may not completely understand that they may have to take remedial courses before they can actually start college-level studies. But while a student's record in high school does little to influence his or her ability to attend *some* college, that record is strongly related to success once the student is in college. Thus one problem is that students fail to understand what will be expected of them in postsecondary education.

What many argue is needed is much stronger communication and collaboration between secondary and postsecondary systems (Orr, 1998; 1999); communication that will help students understand what they need to know and be able to do to achieve the ambitions that so many have. In many cases, this may motivate students to take their studies more seriously. Our education system currently creates a significant break between high school and college. But as

some postsecondary education becomes increasingly necessary to gain access to most reasonably well-paid jobs, this sharp division is becoming more problematic. One solution to this problem involves creating a so-called K-14 system, that shifts this divide back two years. More ambitious proposals call for a smooth transition all the way from pre-kindergarten through college – a "P-16 movement" (Kleiman, 2001).

While interest in links between high school and a broad range of colleges has grown in recent years, efforts are building on some pre-existing relationships. We will briefly review two of those relationships—the coordination of high school exit and college entry standards, and Tech Prep. The bulk of this paper will then be devoted to a discussion of one rapidly growing and promising initiative, dual enrollment.

Coordinating High School Exit and College Entry Standards

As noted above, the high school standards movement has had some success in bringing about a more challenging high school curriculum and higher-level graduation requirements. Yet, as a recent report on the relationship between high school graduation and college entrance asked: "will the students who meet the state's new requirements for high school graduation be prepared to enter college without remediation, should they choose to do so?" (The Education Trust, 1999, p.3).

One state in particular has moved towards this goal. Over the past few years, New York State has made the once-optional Regents examinations mandatory for a high school diploma. At the same time, the City University of New York (CUNY) system was engaged in a self-evaluation, one result of which was the ending of remediation courses at all of its four-year colleges. According to an analysis of these events by Kleiman (2001), the CUNY Vice Chancellor saw the potential for coordination between the new tougher policies of the state and of CUNY. An outside assessment of the Regents was conducted and it was determined that a score of 75 on either the math or English exams would exempt any entering CUNY student from taking remedial classes. As Kleiman (2001) states, "New York City is among the few places making college readiness the benchmark for high school graduation" (p.12). This initiative allows students to actually take fewer tests, while understanding better what is expected of them for college-level work.

Similar, though not as far-reaching efforts can be found elsewhere. Some colleges are now reporting applicants' scores on placement examinations to their high schools. Orr (1999) found evidence of this in her research at four community colleges, and notes that the high school teachers were surprised to learn how poorly their students had performed on the tests. The National Commission on the High School Senior Year (2001) recommends that college placement

examinations be given to high school students as early as the 10th grade, to help students and their parents (and, we would add, their teachers) begin to gauge their readiness for college-level work.

Tech Prep

Tech Prep is frequently mentioned as a program that is making some progress in formalizing articulation between secondary and postsecondary education (c.f. Orr, 1998; 1999; Bailey & Morest, 1998). Originally conceived in the early 1980s by Dale Parnell (1985) with the goal of improving the transition between high schools and community colleges, Tech Prep offers students planned career pathways that link high school classes to advanced technical education at the colleges. These programs usually begin during the last two years of high school and continue into the first two years of college.

Tech Prep began receiving federal funding in 1990 and has grown considerably. At the local level, Tech Prep is organized by consortia of businesses and secondary and postsecondary educational institutions, and according to a 1993 survey carried out by Mathematica Policy Research, 69 percent of all school districts reported membership in a consortium (Silverberg, Hulsey, & Hershey, 1997). The number of community college and postsecondary school consortia members has grown considerably during the mid-1990s (ibid.). However, while a 1995 survey found that Tech Prep is potentially available to 88 percent of secondary school students, only 8.4 percent (740,000) were actually participating in these programs (ibid.).

A longitudinal study of thousands of Tech Prep and non-Tech Prep participants is currently underway (see Bragg, 2001). Researchers engaged in this study have identified different models of Tech Prep and are tracking the two groups of subjects. Findings so far are that at least 65 percent of Tech Prep participants enrolled in some form of postsecondary education within one to three years of high school graduation, a figure comparable to national data. Findings on persistence in postsecondary education are not yet available.

A great deal of attention has been paid to Tech Prep in the literature, because of its promise in strengthening collaboration between secondary and postsecondary schools. However, the initiative is hampered because it is often perceived as a high school vocational program, while the emphasis of secondary education is increasingly on academics. Bragg (2001) found that Tech Prep students often are not aware that the courses taken in high school generate college credit, and Hershey et al. (1998) found widespread implementation of a model that targeted vocational students and was not recognized by them as a course of study leading to postsecondary education. It seems that Tech Prep's goal of creating sequences of linked high school and community college coursework has proven challenging. In our own research at community colleges,

administrators and faculty have shown a mixed reaction to Tech-Prep. In the last few years, dual enrollment, another program to link high school and college, has attracted much more enthusiastic attention.[1]

Dual Enrollment

Dual enrollment programs, currently being implemented in many states and localities, are another example of a way to link high school and college. Though such programs, often called "concurrent enrollment" or "dual-credit" programs, have existed for over thirty years, their enrollments have increased rapidly recently. They are often seen as a way to offer high school students access to coursework not available at the high school as well as a means of exposing them to the academic demands of college. As dual enrollment requires formal linkages between high schools and colleges, they are also a mechanism for promoting partnerships between the two education sectors.

Why Dual Enrollment?

Dual enrollment programs allow high school students to enroll in a college course prior to high school graduation, giving them first-hand exposure to the requirements of college-level work while gaining high school and college credit simultaneously. Traditionally, these programs have been reserved for high-achieving students. Dual enrollment in this sense has been seen as offering gifted students an academically challenging alternative to remaining in their regular, age-graded high school programs (Rogers and Kimpston, 1992).[2] All but the most advanced students are usually excluded from this model of dual enrollment. Proponents of this view believe that less advanced students might not be academically prepared for college-level work, and that offering "easy" access to college will reduce their motivation to achieve at high levels in high school (Greenberg, 1988).

Recently, however, some educators have argued that middle and even low-achieving students can benefit from dual enrollment programs. Policy reports issued by such groups as the National Commission on the High School Senior

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[1] In the last five years, Community College Research Center teams have conducted fieldwork at over 30 community colleges around the country. While we have not yet compiled the data collected that are specific to Tech Prep, our impression is that Tech Prep is usually a small effort aimed towards vocational students and does not tend to be viewed as a college transition program for a broad population of students. In contrast, dual enrollment appears to have more widespread support as a program that is potentially far-reaching.

[2] This type of dual enrollment can also occur prior to high school; for example, gifted junior high school students may enroll in a high school for part of their instruction and the junior high school for the remainder. As such implementations of dual enrollment do not address the transition from secondary to postsecondary education and are limited to the most advanced students, they are outside of the scope of this paper.

Year (2001) have emphasized the frequency with which young people opt out of challenging coursework in the final year of high school. They note that the senior-year high school curriculum can have little meaning for students' post-high school experience, as students have frequently already completed graduation and college-entry requirements. Thus, dual enrollment, with its college-credit-bearing component, is seen as a way to encourage students who might otherwise "slack off" to engage in demanding coursework during the final year of high school.

In addition, some believe that under-achieving students can actually perform at a much higher level; these students are just not motivated to do so because they are bored in class or see little relationship between their achievement in high school and their future success (Lords, 2000). Offering these students dual enrollment opportunities—academically rigorous and engaging courses—might promote hard work and high achievement. Thus the presumed challenge of dual enrollment courses is viewed as a way to motivate students to work harder than they would in a regular high school class. This is consistent with the popular view that a wide range of students respond well to high expectations.

The relationship found between a rigorous high school course-load and success in postsecondary education (c.f. Adelman, 1999) serves to encourage the spread of dual enrollment for middle and low-achieving high school students. Dual enrollment is seen as a way to increase students' exposure to high-level, challenging courses prior to college enrollment. In short, it is a way to increase the intensity and rigor of the high school curriculum. And, as it is this intensity that is most closely connected to students' future success in college, it is hypothesized that challenging students through dual enrollment programs will lead to high levels of college success.

In connection with the emphasis on increasing the rigor of the high school curriculum is a third rationale for opening dual enrollment programs to a wider range of students: the ability to offer students a wider array of curricular choices. In the face of budgetary pressures, high schools must often limit the courses that they offer; science and technical courses, which require expensive lab equipment, and upper level courses, which usually have small enrollments, are often eliminated from the high school curriculum in favor of less expensive (and less rigorous) courses (Robertson, Chapman and Gaskin, 2001). "Extras," such as music and drama programs, are also frequently eliminated. Dual enrollment programs enable students to take advantage of such courses at the college level, thus exposing them to the rigors of lab science or advanced foreign language even if the high school itself is unable to provide such instruction (Adelman, 1999). Therefore, using dual enrollment to supplement the high school curriculum can potentially increase student motivation (by expanding the selection of interesting and challenging courses) and student success in college (by exposing them to advanced coursework).

These benefits are particularly important for vocational students. The increased emphasis on academics and standards has led to a de-emphasis on vocational coursework in the high school. Such courses, particularly those that are lab-intensive and in need of regular updating, such as automotive technology, printing, or welding, are being phased out in many high schools in favor of academic coursework (Rafn, 2002). The presence of well-developed vocational courses and labs at community and technical colleges means that dual enrollment can provide such options for students who may not have access to vocational education in their high school. The community college's traditional role as a provider of technical education makes such a partnership with high schools an ideal endeavor—students are able to take vocational courses, high schools can focus on creating curricula that enable all students to meet high academic standards, and two-year institutions are able to fill their technical classes and create a "pipeline" of future students.

In addition to facilitating the academic transition to college, dual enrollment can help students make the psychological transition. Frequently, students who do not persist in college cite non-academic factors as reasons for dropping out: they are overwhelmed by the new institution, they are unfocused, or they had unrealistic expectations of the college experience (Noel, Levitz, and Saluri, 1985). Because many (though not all) dual enrollment programs include time on campus and exposure to the non-academic side of college, it can serve as a demystifying experience for students, allowing them to acclimate to the college environment earlier. Many programs offer their high school students access to on-campus activities and support centers, allowing students to learn about these services before they need them. Young people can begin to understand what will be expected of them as college students, potentially increasing their confidence and helping them to navigate the transition. Giving students a realistic expectation of what college is like enables them to adjust more easily to full-time college life upon high school graduation. Alternatively, expensive false starts in college can be avoided, as a dual enrollment experience may show some students that college, at least at this time, is not for them.

The spread of dual enrollment programs is, to some degree, the result of the rising cost of college. As many dual enrollment programs are free to participating students, they serve as an inexpensive way for young people to earn college credit, thus lowering the long-term cost of a college degree (Orr, 2002). The ability of students to accumulate college credit, in some cases up to almost a full year's worth, prior to entering college allows them to both shorten the time it takes to earn their degree and save significantly on the overall cost of their education. Some states have sought to encourage this, partly for fiscal reasons. In Utah, 75 percent of junior and senior year tuition at state universities is waived for students who earn an associate degree, with the help of dual

enrollment, by the summer after their graduation from high school. Although this program is quite new, the large number of courses offered through the state's concurrent enrollment programs, particularly in Salt Lake City, give reason to believe that some proportion of high school graduates will be able to take advantage of this option. Given the potential financial advantages of such programs, some advocates for their expansion have argued that limiting them to only the most academically able limits access to educational opportunity and is thereby contrary to the mission of public education (Greenberg, 1988).

Community colleges may also benefit financially from dual enrollment programs. In particular, where dual enrollment courses are taught in the high school, using high school teachers (who are certified as eligible) who are paid at an adjunct rate, the costs to the college are extremely low. If state policy is to reimburse the colleges at a full FTE rate for dual enrollment students, then colleges could generate net revenues from these programs, even if they forgo tuition. In cases in which the high school or the individual students pay tuition, then the college could benefit even more. However, it should be pointed out that in many states, community college financing, especially where local property taxes are particularly important, is less sensitive to enrollments; and in these cases, individual colleges may have no direct financial incentive to expand dual enrollment. On the other hand, even when there is no financial incentive, college administrators may see political and recruitment benefits of these types of relationships with high schools and local communities (Bailey and Morest, forthcoming).

What do dual enrollment programs look like?

The above arguments in favor of the spread of dual enrollment have proved compelling. Though no exact count of the number of such programs or enrolled students is available, most evidence indicates that participation is growing rapidly. A 2001 report by the Education Commission of the States reported that all but three states have some sort of dual enrollment program, though the comprehensiveness and institutional arrangements promoting the programs vary widely (ECS, 2001). In Virginia, there were 6,700 high school students in dual enrollment programs in 1997, as compared to only 2,000 in 1991 (Andrews, 2001). In New York City, where a concentrated effort to increase dual enrollment is underway, the number of colleges offering dual enrollment grew from six to 17 between 2000 and 2001; nearly 12,000 New York City high school students enrolled in a credit-bearing college course during the 2000-2001 school year (Kleiman, 2001). In our own fieldwork through the Community College Research Center, we have noted a significant increase in the awareness and enthusiasm about dual enrollment in just the last two or three years.

The strong growth in dual enrollment programs masks variation among state policies and institutional arrangements. While, by definition, dual enrollment programs allow high school students to take college courses and earn credit at the high school and college levels simultaneously, the funding streams, academic requirements or prerequisites, and structure of the programs range widely. Funding, in particular, has been a difficult issue for states to address, and funding streams for dual enrollment programs vary (Orr, 2002; Boswell, 2001). Some states' legislation requires the state or local school district to pay students' tuition at the college they are enrolled in, while others compel students to pay their own tuition and fees, and still others allow funding decisions to be made at the local level. Likewise, some states allow both the high school and the college to count dual enrollment students as part of their full time equivalent (FTE) when calculating state financial support, while others allow colleges to charge fractional FTEs for dual enrollment students. Policy addressing dual enrollment is so new that these funding mechanisms are still evolving, and are thus difficult to categorize.

The determination of which high school students are eligible for dual enrollment programs also varies (Boswell, 2001). As noted earlier, the trend is to open access to dual enrollment to a wide range of students, with the hope that less-motivated high school students will benefit from the challenge of a college course. However, concerns about quality, rigor, and the maintenance of college-level standards within dual enrollment courses have led many states and educational institutions to require that dual enrollment students meet at least minimum academic requirements. Some are quite rigorous, requiring high levels of academic achievement and/or high scores on standardized tests, while others stipulate that students be able to pass the proficiency tests given to all incoming college freshmen. Some states and colleges allow local high schools to determine which students are qualified for dual enrollment programs. In general, it appears that dual enrollment is still targeted to highly motivated and academically proficient students, although participation has spread from the most academically gifted to a slightly broader population of students. However, national data are not available to confirm this perception.

A wide range of courses is offered to students through dual enrollment. Unlike with Tech Prep, dual enrollment options may include advanced liberal arts coursework, though in some areas the program is used to provide vocational education. In Wisconsin, for example, students can take any course not offered at their high school, while other programs, such as in Salt Lake City, limit high school students to courses offered specifically for dual enrollment purposes. Again compared with Tech Prep, course offerings are simplified because the program does not aim for linked sequences of courses but just offers a menu of single choices. Estimates of how many students are enrolled in various course types—advanced math and science, liberal arts, or vocational courses—are inconclusive.

In addition to financing and admissions differences, dual enrollment programs can be distinguished by a number of implementation characteristics. One researcher currently studying dual enrollment in community colleges, Margaret Terry Orr of Teachers College, Columbia University, has categorized the differences as occurring along these features (Orr, 2002):

Course Content: While many dual enrollment courses use the identical course content as traditional college courses, often requiring students to take the same exams and complete the same assignments as their college-aged counterparts, some programs use a modified format, whereby the course is specially designed for high school students.

Location: Dual enrollment courses can be offered on a college campus or at the high school of enrolled students. At the high school, the course may either be delivered in a traditional classroom format, or may be delivered via video or television. A small but growing portion of dual enrollment courses are also delivered via the Internet.

Instructors: Dual enrollment courses can be taught by regular college faculty or by specially certified high school teachers. When high school teachers teach the courses, a lengthy certification process is often required; the question of who certifies teachers as suitable dual enrollment instructors is not easily solved, however, and is a thorny issue for policymakers.

Student Mix: Some dual enrollment programs teach high school students separately, in their own classes, while others combine high school students and college students in the same course.

Credits Earned: Some dual enrollment programs offer students their college credit immediately upon completing the college course. Others, however, offer students "credit in escrow," meaning that they must enroll in postsecondary education in order to receive the credit. An additional issue in this area is the transferability of dual enrollment credits; the ability of students to transfer the credits earned through dual enrollment to public and private four-year institutions is not clear.

Two Models—College Now in New York City and Youth Options in Wisconsin

Though not the first dual enrollment program in the country, the College Now program, initiated at Kingsborough Community College (KCC) in Brooklyn,

New York, is one of the largest. Started in 1984, the program allows seniors from select New York City high schools to take college-level courses at their high school (Greenberg, 1988). The program has expanded rapidly since its inception. During the 2000-2001 school year, nearly 5,000 students enrolled in credit-bearing courses at KCC, and the Kingsborough campus of College Now became the flagship dual enrollment campus for the entire City University of New York (CUNY) system, spearheading a movement to expand and institutionalize dual enrollment programs in New York City (Kleiman, 2001).

Students who wish to enter the College Now program must take a battery of college entrance tests during the spring of their junior year (Kleiman, 2001). Performance on these tests, which are the same as the tests used for freshmen entering the CUNY system, is used to place high school students in appropriate college courses. Those who receive passing grades on the tests are able to enter credit-bearing courses offered through the college. Those who do not pass are directed to remedial courses, also offered through the college, enabling them to complete remediation prior to entering college. Thus, the College Now program serves dual purposes—it gives students a realistic sense of their preparation to do college level work and offers those who need it remedial help while simultaneously offering academically prepared students a chance to earn college credit.

The College Now curriculum is a modified college curriculum; the college faculty designed the courses specifically for high school students (Kleiman, 2001). Courses are delivered to high school students at their school, either before or after the regular school day, though a few courses are offered on weekends (College Now program materials, 2000; 2002). Coursework primarily focuses on the humanities, business, and applied sciences. Students in specialized high school programs are also sometimes able to take coursework in their area of study, such as hospitality for those students enrolled in high school academies of travel and tourism.

High school teachers, who are considered adjunct members of the KCC faculty, teach the courses. As such, these teachers undergo evaluation by college staff prior to teaching and are monitored by KCC staff throughout their tenure as an adjunct professor (Kleiman, 2001). Because the courses are primarily taught at the high school, dual enrollment students are not integrated with regular college students for their courses. However, KCC College Now students are given college ID cards upon registering for the program, which gives them access to the school's campus, facilities, resources, and events (Shulman, 2000).

The College Now program is free to students, and seniors can take up to six credits per semester. Thus, at least in theory, academically prepared high school seniors can earn 12 credits, or the equivalent of a college semester,

during their senior year at no charge. Institutional research conducted for KCC found that graduates of College Now earn more college credit than other CUNY freshmen and are more likely to graduate from college on time (in Kleiman, 2001). This is encouraging, but may simply be a reflection of the types of students who choose to enter College Now, rather than any effect of the program itself.

While the College Now program tends to focus on academic subjects and preparing students for college-level work, the Youth Options program in Wisconsin focuses on providing young people with expanded curricular choice, particularly in vocational subjects. Instituted in 1998 as the result of a state statute, the Youth Options program allows high school juniors and seniors in Wisconsin to enroll in technical colleges and public and private universities to take courses that are not available in their high schools (Rafn, 2002). One site in particular, the Youth Options program at Northeast Wisconsin Technical College (NWTC), addresses the needs of students to take courses outside the traditional high school curriculum.

The NWTC Youth Options program provides college courses to students in a wide geographic area, including many very rural parts of the state. The college has three campuses and five regional centers; students can take courses on one of the campuses or via Interaction Television (ITV). A very small percentage of students take courses on-line via distance education programs. Course options include anything not offered at individual high schools; the most common courses taken by Youth Options students are in the applied social sciences, such as psychology or criminal justice, and vocational courses, such as machine tooling or agricultural science (Rafn, 2002).

Like the College Now program in New York City, the Youth Options program is free to students, with tuition paid by the local school district. Unlike the College Now program, determination of which high school students are eligible is made by individual high schools. Also in contrast to College Now, students in Youth Options do not take specially designed courses. Rather, they take the same college courses as other students at NWTC, though the ITV courses tend to be made up of only high school students. Courses offered on campus often integrate the high school students with college students. College faculty, not high school instructors, teach all courses.

During the first three years of the Youth Options program, enrollment increased substantially. Approximately 150 students entered Youth Options during the 1998-1999 school year; that figure had doubled by the 2000-2001 school year, with slightly over 300 students enrolling in the program (Rafn, 2002). The program is quite new, and so postsecondary outcomes for Youth Options students are not available. Youth Options students matriculate at NWTC at about

the same rate as other high school students in the area; however, data for Youth Options' students overall college enrollment are unavailable.

One area in which Youth Options has had a discernible impact, however, is in providing a wide array of curricular options to high school students, particularly students attending small, rural high schools. As noted earlier, the cost of providing a wide range of courses, particularly vocational courses, combined with the states' focus on academic standards and testing, has led many schools, particularly smaller ones, to eliminate elective and vocational coursework (Rafn, 2002). Allowing the technical college to provide instruction in these areas has helped to ensure that students are able to access such courses without placing the burden on high schools to provide expensive lab classes. In fact, a number of high schools in the NWTC's region have deliberately delayed expanding vocational course offerings or modifying lab facilities, with the understanding that these courses are better located within the technical college system. Thus, Youth Options has served as a cost effective way to provide vocational education to high school students, while simultaneously encouraging students to earn college credit prior to high school graduation.

A Developing Backlash?

Although community college and high school faculty and administrators are enthusiastic about dual enrollment, some state- and district-level officials and legislators are more skeptical. Much of the concern is focused around financing. In states in which both colleges and high schools receive some funding based on enrollments, it appears that the state is paying twice for the same dual enrolled students. Thus, some state legislators have accused the programs of "double dipping" into limited financial resources (Orr, 2002). For example, the governor of Arizona recently proposed cutting the FTE reimbursement rate for dual enrollments from 100 percent to 20 percent of the community college rate. Likewise, the superintendent of the Chicago public schools has proposed capping the number of students permitted to enroll in the city's dual enrollment programs.

As dual enrollment programs spread, state legislators will have to clearly address the question of how to fund them most equitably. Decisions as to the most appropriate funding mechanisms should reflect states' goals for the programs and take into account unintended consequences. For example, reducing or eliminating state payments to the colleges could lead to the colleges charging students tuition, which would eliminate the financial benefit to families and risk that lower-income students would be unable to participate. Reducing funding to the high schools for the students attending college courses could discourage the high schools from offering the programs. Continuing to fund students twice, however, is likely to remain a politically and fiscally unpopular

solution. Thus, legislators will have to study the impact of various funding formulas and adjust their program administration accordingly.

Critics also worry about the quality of dual enrollment courses (Clark, 2001). Some fear that the rigor of the curriculum is compromised by virtue of the fact that it is high school students who are enrolled in the course. Others fear that some models of dual enrollment, particularly those models that do not involve courses on a college campus, differ little from traditional high school coursework. Thus, the Colorado Commission on Higher Education has begun to enforce a regulation according to which dual enrollment courses taking place in high schools, taught by high school teachers, do not meet the state definition of a college course. The Commission has also begun to limit the number of credits earned by an individual high school student for which the college can receive state reimbursement.

Likewise, the New Century Scholarship offered in Utah, which encourages students to complete their associate degree, by way of dual enrollment credits, by the fall of the year they graduate from high school, may give some cause for concern. Under this program (which is quite new and thus has not been evaluated), eighteen year-olds who may have spent little or no time on a college campus are considered "community college graduates." The ramifications of this acceleration are not clear, thus such a policy and its impact should be explored in greater detail.

Outcomes and research findings

The literature regarding the academic and postsecondary transition outcomes of participants in dual enrollment programs is unfortunately sparse (Orr, 2002). Much of the research that is available has been conducted by the programs themselves, and therefore has a tendency to be "cheerleading," emphasizing positive outcomes rather than objectively reporting student impacts. Other research has focused on student perceptions of the program, the ways in which they use dual enrollment, or credit accumulation (Orr, 2002). Less research has been conducted on longer-term outcomes, such as the time it takes for participants to earn their college degree, as compared to other students.

The most serious methodological problem involves selection. Many programs require students to be academically successful prior to admission. In such cases, it is hardly surprising that dual enrollment students enroll in postsecondary education and have greater success there than a more typical group of students.

There is evidence that students enjoy their participation in dual enrollment programs, find it useful and motivating, and are generally satisfied with their experience (Orr, 2002; see also Robertson, Chapman and Gaskin, 2001). For

example, one follow-up study of dual enrollment completers from Salt Lake Community College (SLCC) found that the majority of respondents believed that their participation in dual enrollment encouraged them to attend college (Peterson, Anjewierden, and Corser, 2001). The limited evidence also suggests that dual enrollment students are successful once they enter postsecondary education. A study conducted by the University of Washington found that students enrolled in Washington state's dual enrollment program, Running Start, performed comparably in the two-year institutions to similar other two-year college students, and those who transferred to the University of Washington continued with "solid" academic performance (Washington State Board for Community and Technical Colleges, 2001). But this study did not control for students' pre-existing characteristics.

Studies of dual enrollment students in Arizona also show positive postsecondary outcomes for participants, though again it is not clear that the research controlled for students' likely outcomes without the dual enrollment experience. Still, over 90 percent of dual enrollment students who received their college instruction on a college campus graduated from high school, as compared to the average of 49 percent for the seven high schools from the Maricopa Community College District (Finch, 1997, in Puyear, Thor, and Mills, 2001). A survey of dual enrollment students from another Arizona program found that students' first semester grades were higher than those of a typical community college transfer student (Finch, 1997, in Puyear, Thor, and Mills, 2001). A third study, conducted by the University of Arizona (in Puyear, Thor, and Mills, 2001), found that dual enrollment participants had lower drops in GPA upon entering the university than did other students, even when prior academic achievement was controlled for. Variation in unmeasured characteristics may still account for these different outcomes, nevertheless, this study does suggest that dual enrollment may indeed ease students' transition to postsecondary education; students' ability to maintain their grades during the first year of college may be a result of better academic or emotional preparedness, due to their participation in dual enrollment courses.

As noted earlier, studies of Kingsborough Community College's College Now program have indicated high levels of success for program participants. Though students earning college credit through College Now must be academically proficient, students with low levels of academic achievement can participate by taking remedial coursework offered through the college. As a group, College Now participants have a high level of postsecondary success (Kleiman, 2001). When compared to CUNY freshmen who did not participate, College Now students who enrolled in the CUNY system were twice as likely to graduate from college on time and less likely to need remedial coursework (Kleiman, 2001).

We are only beginning to get a sense of the impact of dual enrollment programs on students. The minimal research available certainly indicates that participants and educators, both in high schools and community colleges, are enthusiastic about the strategy. Students do proceed on to college and have more success there than the typical high school student, although this may reflect the characteristics of the dual enrollment students rather than the effects of the program. The very small number of studies that control for high school grades at least begin to take account of selection effects, and such studies still show positive effects. In any case, what we know so far is positive enough to warrant further experimentation and assessment.

Conclusion and Federal Policy Role

Although dual enrollment is not a new strategy, it has grown rapidly in the last five years. It therefore has the potential to shift from a program focused on a relatively small number of higher achieving students to a much larger strategy with the potential to facilitate the high-school-to-college transition for a broad range of students. The enthusiasm of the participants and some preliminary evidence suggest that the strategy has great potential. Nevertheless, any positive conclusions can only be considered tentative and many of the policymakers and legislators responsible for funding both high school and community college enrollments have questioned whether these expenditures are really the most effective use of their dollars.

Analysis so far has suggested that dual enrollment may have the potential to improve preparation for college: it may motivate students to take a more rigorous high school curriculum; it shifts the focus of occupational education to postsecondary institutions, while keeping such coursework available for high school students; it can provide an early warning mechanism to signal whether students are prepared for college; and it can acclimate students to a college environment while they are still in high school. If dual enrollment does have these effects, then it is likely that it can increase college enrollment rates, but perhaps more important, improve the success of students once they enter college. Conversely it may help some students decide earlier that college, at least at this point, is not for them, and that they might spend their time more productively working or enrolling in more focused occupational education such as apprenticeships or training for industry based certifications. Dual enrollment can also fit with other federal goals, such as improved career guidance in high school and the more effective assessments sought by the No Child Left Behind strategy.

Given all of this potential, should the federal government, through the legislative and funding tools that it has available, encourage and promote the spread of the dual enrollment strategy? In our judgment, it is too early to answer this question definitively. We have emphasized throughout this report, though, that early evidence does indicate potential; therefore this is one case in which the

federal government can play a crucial role in promoting and coordinating experimentation and assessment.

Despite the growing enthusiasm and popularity of the strategy, a surprising number of straightforward descriptive questions remain unanswered. Exactly how many students are participating and how many courses do they take? What is the mix between courses taken in high schools, on college campuses, or through some form of distance education media? Similarly, how much of this program involves mixing high school and college students? It is also important to know whether high-school-based dual enrollment courses are taught at a college level, or whether the content of community college courses with large high school enrollments is downgraded.

It is particularly important to understand the extent to which the program is confined primarily to more advanced and academically successful students and whether more typical high school students can perform adequately in college courses that are in fact taught at the college level. The federal government may have an interest in promoting a program focused on the top students, perhaps in order to strengthen the education of advanced scientific personnel. But dual enrollment would be much more relevant to the Perkins Act and to the Office of Vocational and Adult Education if it serves a broad range of students.

In the end, educators and policymakers need to know whether well-designed dual enrollment programs live up to their potential. Do these students attend college at higher rates, do they have stronger college records, and are they able to make plans and decisions more effectively? Is dual enrollment more effective for particular types of students? Vocationally oriented students may benefit from enrollment in higher-level occupational courses. It is possible that students from the middle of the achievement distribution have a great deal to gain from dual enrollment, while it could be counterproductive for students with more serious problems.

Dual enrollment has the potential to alter the relationship between high school and college. At one extreme, it could fundamentally change the content of the high school junior and senior years and at the same time promote a more focused and perhaps coherent role for postsecondary institutions, particularly community colleges. At the other extreme, it could reduce the amount of effective education received by students if they emerge from high school having learned exactly the same things that they would have in a regular high school program, but now having accumulated some college credit for that high school education. At this time, the federal government, through a coherent and well-designed program of innovation and assessment, has an unusual opportunity to shape and

guide a movement that is growing rapidly yet so far lacks a solid basis on which educators and legislators can make decisions about design, size, and targeting. Given the enthusiasm for the program and its apparent potential, a federal focus on this strategy seems well worth the effort.

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